

C-101 POST-RETRIEVAL/CLOSURE SAMPLING

MEETING NOTES - Attachment

LOCATION: Sigma IV/Conference Room 101

DATE: April 28, 2015

Attendees:

Jim Alzheimer	Ecology
Mike Barnes	Ecology <i>MMB</i>
Duc Nguyen	WRPS
Heather Baune	WRPS <i>HB</i>
Jeff Rambo	ORP <i>JR</i>
Scott Luke	WRPS <i>SL</i>

Additional Distribution:

Chris Kemp	ORP <i>CK</i>
Billie Mauss	ORP
Jerry Yokel	Ecology
Peggy Hamilton	WRPS
Blaine Barton	WRPS
Les Fort	WRPS
Ruth Allen	WRPS
Susan Eberlein	WRPS
Garth Stowe	WRPS

Meeting Objective:

The purpose of the meeting was to discuss the recently completed sampling of C-101 residual waste solids in support of tank closure and to come to an agreement regarding whether sampling objectives were met and sampling could be considered complete.

Discussion:

- A description of the recently completed C-101 sampling effort was provided (Attached) for use as meeting talking points. The discussion topics included background information, sampling equipment, sample design, planned and actual sample locations, physical waste characteristics, sampling constraints, samples and sample quantities obtained, and justification for sampling acceptance.
- Although not all samples required by the TSAP were collected, WRPS Engineering provided justification (summarized below) to conclude that the C-101 sampling objective had been achieved and sampling can be considered to be complete.
 - The bulk of the tank waste solids is located in the sampled areas (Regions 1 and 3); therefore, the samples taken from these regions represent the bulk of the waste.
 - Based on in-tank videos, field observations, and sample photographs, the waste in all three regions was visually similar and of comparable consistency. The samples collected from

C-101 POST-RETRIEVAL/CLOSURE SAMPLING

MEETING NOTES - Attachment

regions 2 and 3 included all the observable waste forms (i.e., sandy, powdery and chunky material) and so represent all the waste in the tank.

- Insufficient sample material was collected to prepare all the required composite samples and a reduced number of composites increases sampling uncertainty. Because sufficient material was obtained to allow complete analysis of each sample individually, it was proposed to analyze each sample individually to reduce the uncertainty. This proposed change will not adversely impact the laboratory because the slight increase in analyses will be offset by eliminating composite preparation.

Agreements:

The following agreements were reached at this meeting.

- The sample material collected is sufficient to characterize C-101 tank waste and C-101 sampling objectives were achieved. Consequently, further C-101 sampling is not necessary and post-retrieval sampling of C-101 can be considered to be complete and retrieval equipment can be demobilized.
- The collected samples will not be composited and each sample will be analyzed individually.
- Leach rate testing by the Pacific Northwest National Laboratories on the C-101 sample material is not necessary and sample material need not be set aside for this testing.

Actions:

- WRPS will revise the tank C-101 tank sampling and analysis plan (RPP-PLAN-59975) to reflect the agreed upon changes.

SUMMARY OF 241-C-101 ORSS SAMPLING TO SUPPORT CLOSURE

Background. Sampling of 241-C-101 (C-101) in support of tank closure began April 22, 2015 and was completed April 23, 2015. Sampling was performed in accordance with tank sampling and analysis plan (TSAP) RPP-PLAN- 59975, *Sampling and Analysis Plan for Post-Retrieval Waste Solids in Tank 241-C-101*. This TSAP provided for sampling and analysis to meet the requirements of RPP-23403, *Single-Shell Tank Component Closure Data Quality Objectives* and RPP-PLAN-23827, *Sampling and Analysis Plan for Single-Shell Tanks Component Closure*.

The C-101 sampling employed the off-riser sampling system (ORSS) mobile sampler (Figure 1) that is intended to allow collection of residual solids from anywhere on the tank floor. The mobile sampler is a remote-controlled six-wheeled vehicle with a remotely controlled scoop to collect sample material. In-tank video cameras at risers 3 and 8 were used to guide and record sample collection. The sampler is driven to the desired location as guided by the operator's video screen where the scoop is manipulated to collect sample material. The sample material is deposited into a sample retrieval assembly (Figure 1) that is lowered by cable through a riser to the tank floor. This assembly is comprised of a sample bottle holder, sample bottle, and funnel.

C-101 Sampling. The C-101 sampling design called for collection of samples using the ORSS of residual waste remaining on the tank floor after completion of retrieval activities. Figure 2 shows the planned (and actual) sample locations. At the time of sample planning, these locations were expected to be accessible for sampling. A total of nine (9) samples were planned to be collected from sample areas located within three primary sample regions (Regions 1, 2, and 3). The three samples from each Region were planned to be composited into one sample of approximately 450 grams representing the region. Sample jars are required to be $\frac{1}{2}$ or more full to ensure sufficient material to complete all analyses and if not full enough would be lowered back into the tank to collect additional material from the same location. As described in RPP-23403, three samples were preferred for each composite but the sampling objective would be considered achieved if sufficient solids were collected from less than three areas within the Region to complete the analyses.

For C-101 sampling, the mobile sampler was lowered into the tank through 12-inch Riser 7 (15-CCN-06). The waste encountered by the mobile sampler was a mixture of dry, sandy and powdery material with larger chunks. The actual sample locations were specified by WRPS Engineering during sampling with consideration of the waste conditions, accessibility by the mobile sampler, and potential for mechanical failure (e.g., broken scoop, entanglement). Sampler traction while attempting to drive on this waste was exceptionally limited because of the physical nature of the waste and the ORSS frequently had to be freed by pulling on the control cable. Along with poor traction, the vehicle's minimal height clearance made even small rocks an encumbrance. Consequently, waste collection was limited to areas accessible by driving over bare tank floor.

It was noted during sampling that due to the physical nature of the waste and the resulting limited traction, areas not accessible by driving over bare floor (e.g. Region 2) likely could not be sampled.

MEETING NOTES - Attachment

Consequently, Regions 1 and 3 were sampled first and sampling of Region 2 would be attempted last. Multiple sampler scoops were required to obtain sufficient material for all but one sample area (SA 3-3). The operator was careful to avoid debris and encumbrances while driving. However, while being pulled free during a loss of traction, the sampler was pulled through a partially buried manual tape in which it became entangled. At that point, Sampling Operations determined that due to this entanglement the mobile sampler was no longer operational and sampling stopped to await further direction. At the time of sample stoppage, sampling of Region 3 was complete, Region 1 was almost complete, and Region 2 had not yet begun. Sample collection was recorded and copies of the videos will be available.

Information for the collected samples is shown in Table 1. Preliminary laboratory information indicates that sufficient material exists for analysis of Region 1 and 3 composites, if prepared. Alternatively, sufficient material may exist for analysis of each sample individually. Ecology has indicated that material from this sampling event need not be archived for future leak rate testing.

Sampling objective achieved. Although not all samples required by the TSAP were collected, the sampling objective should be considered achieved and sampling complete because as indicated below, the collected sample material sufficiently characterizes the residual waste.

- The bulk of the tank waste solids is located in the sampled areas (Regions 1 and 3); therefore, the samples taken from these regions represent the bulk of the waste.
- The waste appeared visually similar and of comparable consistency throughout the tank. Video acuity was good and the physical nature of this waste at multiple locations was readily identifiable during sampling. Tank video evidence showed the surface of the waste throughout the tank to be visually similar. Seeing the waste as it was deposited in the sample funnel, the consistent behavior of the sampler as it attempted to drive over waste, and the tracks that the sampler left in the waste, showed the waste to consistently be dry, sandy and powdery material with some larger chunks. The samples obtained contained all the observable waste forms (i.e., sandy, powdery and chunky material). Photos of the samples were provided. This is an indication that waste materials from all three regions are similar and the samples taken from Regions 1 and 3 may reasonably be used to represent all the waste in the tank.
- The collected samples allow preparation and analysis of only two out of the three planned composites. The reduced number of composites increases the uncertainty in the variability of the waste. Therefore, it is proposed that the samples be analyzed individually to reduce the uncertainty. Field observation during sample collection and preliminary lab reports indicate that sufficient material was obtained to allow complete analysis of the individual samples. This change would have a minimal impact on the laboratory because the small increase in analyses will be offset by eliminating composite preparation.

C-101 POST-RETRIEVAL/CLOSURE SAMPLING

MEETING NOTES - Attachment

Figure 1. Picture of an Off Riser Sampling System

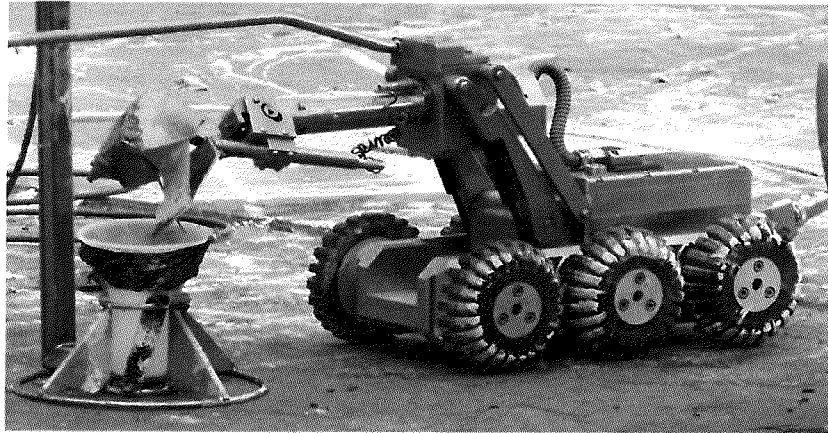
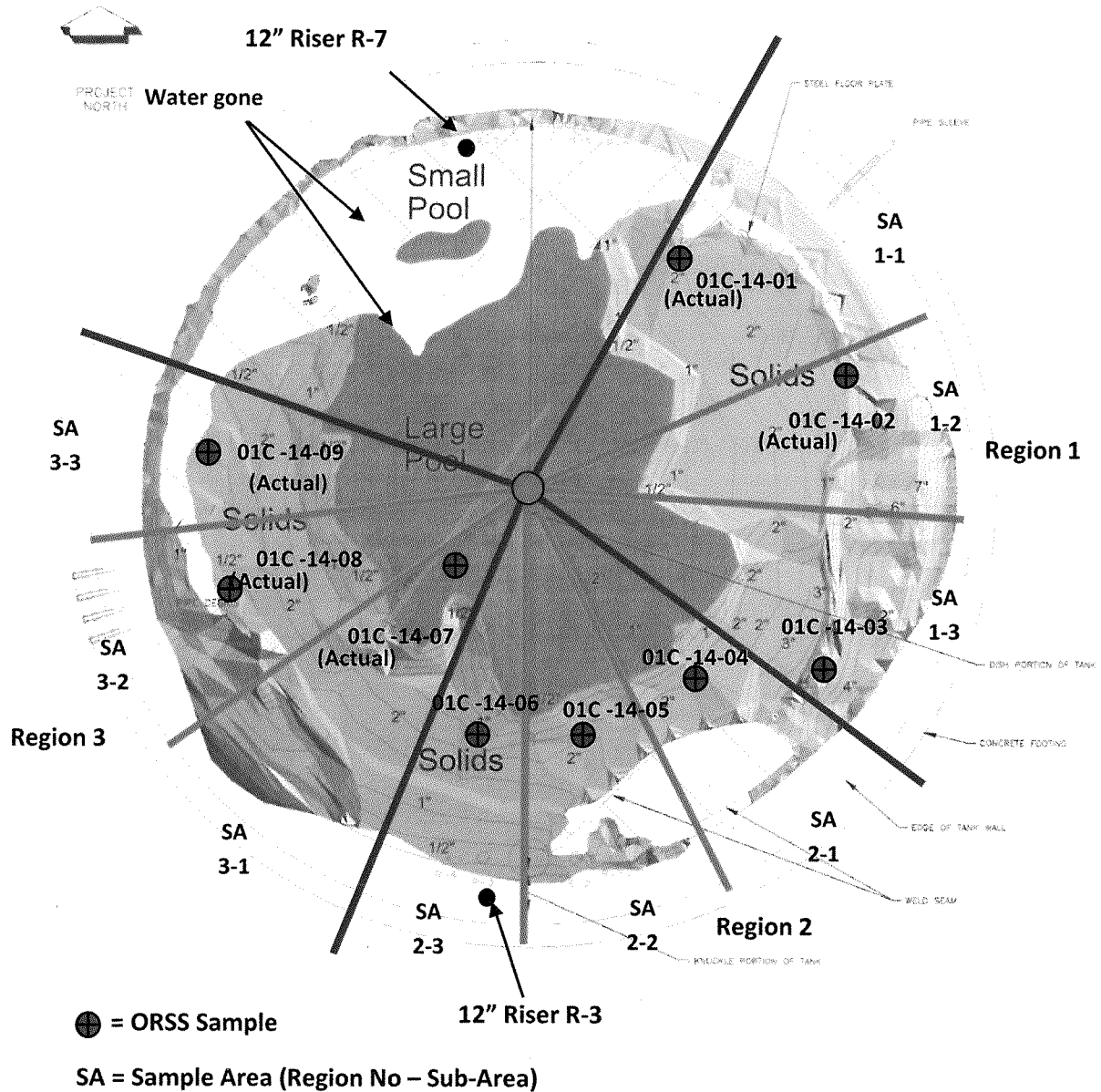


Figure-2. Approximate C-101 Planned and Actual Sample Locations (not to scale)



C-101 POST-RETRIEVAL/CLOSURE SAMPLING

MEETING NOTES - Attachment

Table 1. C-101 Sector Sample Collection

Sample Region¹	Sample Area (SA)	Sample Id	Collection Date	Sample Quantity (g)	Sample Composite No. and Quantity (g)²
Region 1	SA-1-1	01C-14-1	4/23/2015	156.4	Composite A/308.5g ³
	SA-1-2	01C-14-2	4/23/2015	152.1	
	SA-1-3	01C-14-3	Not collected ⁴	Not collected	
Region 2	SA-2-1	01C-14-4	Not collected ⁴	Not collected	Composite B - N/A
	SA-2-2	01C-14-5	Not collected ⁴	Not collected	
	SA-2-3	01C-14-6	Not collected ⁴	Not collected	
Region 3	SA-3-1	01C-14-7	4/23/2015	224.0	Composite C/542.9g ³
	SA-3-2	01C-14-8	4/23/2015	175.6	
	SA-3-3	01C-14-9	4/23/2015	143.3	

Notes:

¹See Figure 1.²450g of composite material recommended but not required to complete all analyses.³Estimated composite sample size, if prepared.⁴This sample was not collected due sampling equipment failure.